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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,346	12/19/2001	Michael Bender	52051	9064

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WASHINGTON, DC 20036

EXAMINER

TRAN, BINH Q

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 10/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/021,346

Applicant(s)

BENDER ET AL.

Examiner

BINH Q. TRAN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they fail to show reference number "8" (on page 10, lines 11) as described in the specification. Correction is required.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "1-12" in figures 1-4 have been used to designate different parts in figure 5. The examiner suggests that applicants should renumber of figure 5 and submitted a new drawing to show all the above elements. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

The following headings of the specification are missing, such as

- **Background of the Invention.**
- **Brief Summary of the Invention.**
- **Brief Description of the Drawing(s).**
- **Detailed Description of the Drawing .**

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The *Abstract* is objected to because it contains more than one paragraph. Appropriate correction is required.

Claim Objections

Claims 2-8 are objected to because of the following informalities:

-In claims 2-8, line 1, "*A process*" should be changed to *-The process--*.

-In claim 5, line 3, "*a catalyst*" should be changed to *-the catalyst--*. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. More specifically,

- In claim 1, line 1, "*the catalytic conversion of fuel*" lacks antecedent basis.
- In claim 1, lines 4-5, "*the intake air*" lacks antecedent basis.
- In claim 4, line 7, "*the degradation*" lacks antecedent basis.
- In claim 8, line 5, "*the oxidation*" lacks antecedent basis.
- In claim 9, line 1, "*the catalytic conversion of fuel*" lacks antecedent basis.

The claims not specifically mentioned are indefinite since they depended from one of the above claims.

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Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-2, and 4 are rejected under 35 U.S.C. 102 (b) as being anticipated by Boegner et al. (Boegner) (Patent Number 5,586,433).

Regarding claim 1, Boegner discloses a process for the catalytic conversion of fuel for removing oxides of nitrogen from exhaust gases of internal combustion engines (2) (See Abstract), in which fuel and a part-stream of the exhaust gas or of the intake air are converted in a converter (5), wherein the fuel and the part-stream of the exhaust gas or of the intake air are fed separately from one another into the converter and the fuel is vaporized in the converter (See Figures 1-2; col. 1, lines 38-68; col. 2, lines 1-9).

Regarding claim 2, Boegner further discloses that the fuel is dehydrogenated or partially oxidized (See col. 2, lines 42-47).

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Regarding claim 4, Boegner further discloses that the product stream from the converter (5) is combined with the exhaust gas of the internal combustion engine and is reacted over a catalyst for the degradation of the oxides of nitrogen (See col. 2, lines 32-57).

Claims 1-2, 4, and 8 are rejected under 35 U.S.C. 102 (e) as being anticipated by Balko et al. (Balko) (Patent Number 6,176,078 B1).

Regarding claim 1, Balko discloses a process for the catalytic conversion of fuel for removing oxides of nitrogen from exhaust gases of internal combustion engines (See col. 7, lines 5-10), in which fuel and a part-stream of the exhaust gas or of the intake air are converted in a converter (e.g. 19, 22), wherein the fuel (17) and the part-stream of the exhaust gas or of the intake air (18) are fed separately from one another into the converter and the fuel is vaporized in the converter (See Figure 1; col. 7, lines 35-68; col. 8, lines 1-20).

Regarding claim 2, Balko further discloses that the fuel is dehydrogenated or partially oxidized (See col. 7, lines 35-68; col. 8, lines 1-20).

Regarding claim 4, Balko further discloses that the product stream from the converter (e.g. 19, 22) is combined with the exhaust gas of the internal combustion engine and is reacted over a catalyst for the degradation of the oxides of nitrogen (See col. 7, lines 20-35).

Regarding claim 8, Balko further discloses that the product stream obtained after the reaction over the catalyst (15) for the degradation of the oxides of nitrogen is further reacted over a noble metal-containing catalyst (16) for the oxidation of the remaining organic compounds (See col. 8, lines 8-20).

Claim 9 is rejected under 35 U.S.C. 102 (b) as being anticipated by Koch et al. (Koch) (Patent Number 3,828,736).

Regarding claim 9, Kock discloses converter for the catalytic conversion of fuel (See Figure 1), comprising a vaporization space (6) and a conversion space (1) connected thereto, the vaporization space having separate feeds for exhaust gas or intake air (8) and fuel (5), the conversion space having a catalyst for the catalytic conversion of fuel and the vaporization space and the conversion space being connected to one another so that heat transport from the conversion space into the vaporization space is possible (See col. 2, lines 24-61; col. 3, lines 18-45).

Allowable Subject Matter

Claims 3, and 5-7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Since allowable subject matter has been indicated, applicant is encouraged to submit formal drawings in response to this Office action. The early submission of formal drawings will permit the Office to review the drawings for acceptability and to resolve any informalities remaining therein before the application is passed to issue. This will avoid possible delays in the issue process.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of three patents:

Fournier et al. (Patent Number 6138454) discloses an exhaust gas purifying system that selectively reduces NO_x emissions during lean-burn operation of an internal combustion engine comprising a partial oxidation catalyst.

Fujitani et al. (Patent Number 4109461) discloses a method of operating an internal combustion engine which comprises a catalyst for partially oxidizing a hydrocarbon-base fuel within an exhaust gas passage.

Weisz et al. (Patent Number 3,855,980) discloses fuel-powered engines are operated in combination with a catalytic converter for the conversion of low-octane fuel to high-octane fuel.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (703) 305-0245. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (703) 308-2623. The fax phone number for this group is (703) 746-4561.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.



BT
October 21, 2002

Binh Tran
Patent Examiner
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